WHAT IS CLAIMED:

1. A method for use in wireless equipment, the method comprising the steps of:
transmitting signals using frequency hopping over a time period *T*, by
selecting a frequency from a set of *N* frequencies such that over at least a portion of the time period *T*, the frequency selection is constrained to less than the *N* frequencies.

2. The method of claim 1 wherein frequency selection is done pseudo-randomly.

3. A method of frequency hopping for use in wireless equipment, the method comprising the steps of:
storing a set of hopping frequencies; and
selecting frequencies from the set of hopping frequencies over a time period *T* by limiting the available frequencies from the hopping set over at least a portion of the time period *T*.

4. The method of claim 3 wherein the selecting step selects the frequency pseudo-randomly.

5. A method of frequency hopping for use in wireless equipment, the method comprising the steps of:
initializing a hopping set to a size of *F* frequencies, the hopping set used to select therefrom hopping frequencies over a time period *T*; and
reducing the size of the hopping set over a portion of the time period *T* by at least one frequency.

6. A method of frequency hopping for use in wireless equipment, the method comprising the steps of:
initializing a hopping set to a size of *N* frequencies, the hopping set used to select therefrom hopping frequencies over a time period *T*; and
selecting frequencies from the hopping set over the time period *T* such that at least

one of the selected frequencies is prohibited from subsequent selection in at least a portion of the time period *T*.

7. The method of claim 6 wherein the selecting step selects the frequency pseudo-randomly.

8. A method of frequency hopping for use in wireless equipment, where a hopping set is initialized to a size of *N* frequencies, the hopping set used to select therefrom hopping frequencies over a time period *T*, the method comprising the steps of:

determining a hopping index value;

modifying the hopping index value by at least the modulo of a number *F*, where $F \leq N$;

selecting a hopping frequency from the hopping set as a function of the modified hopping index value;

adjusting the order of the hopping set such that the selected hopping frequency is now at a position corresponding to the value of *F*;

reducing the value of *F*; and

returning to the determining step.

9. The method of claim 8 wherein when the value of *F* reaches a predefined minimum value, further including the step of shifting the hopping set in a cyclical direction by a value equal to a difference between a predefined maximum value for *F* and the minimum value, modulo *N*.

10. A method of frequency hopping for use in wireless equipment, the method comprising the steps of:

initializing a hopping set to a size of *N* frequencies, the hopping set used to select therefrom hopping frequencies over a time period *T*;

dividing the hopping set into an allowable frequency set and a prohibited frequency set;

selecting frequencies from the allowable frequency set; and

after at least one frequency selection, adjusting the membership in the allowable

frequency set and the prohibited frequency set.

11. The method of claim 10 wherein the selecting step selects the frequency pseudo-randomly.

12. The method of claim 10 wherein membership in the allowable frequency set and the prohibited frequency set at a current time is derived from knowledge of the allowable frequency set and the prohibited frequency set at an earlier time.

13. The method of claim 10 wherein knowledge of the allowable frequency set and the prohibited frequency set at a particular time is provided by one wireless endpoint to the other wireless endpoint through explicit signaling.

14 The method of claim 10 wherein all N frequencies in the hopping set are assumed allowable at pre-determined time instants.

15. A method of frequency hopping for use in wireless equipment, the method comprising the steps of:

dividing a hopping set into an allowable frequency set and a prohibited frequency set; and

transmitting information associated with the division of the hopping set to another wireless endpoint.

16. The method of claim 15 wherein the transmitted information enables the other wireless endpoint to derive the allowable frequency set.

17. A wireless endpoint comprising:

a transmitter for transmitting signals using frequency hopping over a time period T; and

a processor for selecting a frequency from a set of N frequencies such that over at least a portion of the time period T, the frequency selection is constrained to less than the N frequencies.

18. The wireless endpoint of claim 17 wherein frequency selection is done

pseudo-randomly.

19. A wireless endpoint comprising:

a memory for storing a set of hopping frequencies; and

a processor for selecting frequencies from the set of hopping frequencies over a time period *T* by limiting the available frequencies from the hopping set over at least a portion of the time period *T*.

20. The wireless endpoint of claim 19 wherein the processor selects the frequency pseudo-randomly.

21. A wireless endpoint comprising:

a memory for storing a hopping set comprising *F* frequencies, the hopping set used to select therefrom hopping frequencies over a time period *T*; and

a processor for reducing the size of the hopping set over a portion of the time period *T* by at least one frequency.

22. A wireless endpoint comprising:

a memory for storing a hopping set comprising *N* frequencies, the hopping set used to select therefrom hopping frequencies over a time period *T*; and

a processor for selecting frequencies from the hopping set over the time period *T* such that at least one of the selected frequencies is prohibited from subsequent selection in at least a portion of the time period *T*.

23. The wireless endpoint of claim 22 wherein the at least one selected frequency is selected pseudo-randomly.

24. A wireless endpoint comprising:

a memory for storing a hopping set comprising *N* frequencies, the hopping set used to select therefrom hopping frequencies over a time period *T*; and

a processor for (a) determining a hopping index value, (b) modifying the hopping index value by at least the modulo of a number *F*, where $F \leq N$, (c) selecting a hopping frequency from the hopping set as a function of the modified hopping index value, (d)

adjusting the order of the hopping set such that the selected hopping frequency is now at a position corresponding to the value of F, (e) reducing the value of F; and (f) returning to (a).

25. The wireless endpoint of claim 24 wherein when the value of F reaches a predefined minimum value, the processor further shifts the hopping set in a cyclical direction by a value equal to a difference between a predefined maximum value for F and the minimum value, modulo N.

26. A wireless endpoint comprising:

a memory for storing a hopping set comprising N frequencies, the hopping set used to select therefrom hopping frequencies over a time period T; and

a processor for (a) dividing the hopping set into an allowable frequency set and a prohibited frequency set, (b) selecting frequencies from the allowable frequency set, and (c) after at least one frequency selection, adjusting the membership in the allowable frequency set and the prohibited frequency set.

27. The wireless endpoint of claim 26 wherein the at least one selected frequency is selected pseudo-randomly.

ABSTRACT

A wireless endpoint employs frequency hopping for communicating signals in a wireless communications system. Over a time period *T*, the wireless endpoint performs pseudo-random selection of a frequency from a hopping set of *N* frequencies such that over at least a portion of the time period *T*, the frequency selection is constrained to less than the *N* frequencies.